

Application No.: 09/989,561
Amendment Dated: November 22, 2006
Reply to Office Action of: August 24, 2006

MAT-8201US

Remarks/Arguments:

Claims 1, 3-5, 9, 13 and 17 have been amended. Claims 23 - 31 have been added. No new matter is introduced herein. Claims 6-8, 10-12, 15, 19, 21 and 22 have been cancelled. Claims 1, 3-5, 9, 13, 17 and 23-31 are pending.

Claims 1, 5, 13 and 17 have been amended with the features of claim 22. Claim 22 has been cancelled. Support for the amendment to claims 1, 5, 13 and 17 can be found, for example, at page 13, line 21 - page 14, line 12 of the subject disclosure. Claims 1, 3-5, 9, 13 and 17 have also been amended to clarify the language. Claims 3 and 4 have been amended to correspond to amended claim 1. No new matter is introduced herein.

Claims 13, 15, 17 and 19 have been rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Claims 15 and 19 have been cancelled. Claims 13 and 17 have been amended accordingly. Applicants respectfully request that the rejection of these claims be withdrawn.

Claims 1, 5, 9, 13, 15, 17, 19 and 21 have been rejected under 35 U.S.C. §102(b) as being anticipated by Pfister et al. (WO 96/03741). Claims 15, 19 and 21 have been cancelled. Because claims 1, 5, 13 and 17 have been amended with the features of claim 22, Applicants have responded to the rejection of these claims according to paragraphs 13 and 14 of the Office Action, as being unpatentable over Pfister in view of Abe et al. (U.S. Patent No. 6,173,253). It is respectfully submitted, however, that the remaining claims are now patentable over the cited art for the reasons set forth below.

Claim 1, as amended, includes features neither disclosed nor suggested by the cited art, namely:

...the candidates prepared in the candidate preparing step (b) are obtained by repetition of an extension processing step (b1) for performing an extension of words, the extension processing step (b1) determining whether to link the words based on a word-based linkage probability obtained by a language model...

Amended claims 5, 13 and 17, although not identical to claim 1, include similar recitations.

Pfister et al. disclose, in Fig. 1, a speech transcription system that includes a dictation mode and a display and editing mode. In dictation mode, phoneme recognition is performed on the entire utterance to generate a machine readable phonetic symbol string (for example, hiragana or katakana) of the entire utterance (p.17, line 1 - p.19, line 35 and p.21, lines 15-16). In a display and editing mode, word boundaries within the recognized phonetic symbol string are identified and word boundary candidates presented (p.22, line 15 - p.24, line 11). The phonetic symbol string is converted into words (for example, kanji) according to selected word boundary candidates (p.27, lines 24-30).

Pfister et al. do not disclose or suggest Applicants' claimed features of "the candidates prepared in...step (b) are obtained by repetition of an extension processing step for...an extension of words...determining whether to link the words based on a word-based linkage probability obtained by a language model" (emphasis added). As acknowledged by the Examiner in paragraph 14 of the Office Action, Pfister et al. do not disclose that "at least one of said candidates of word-strings is a phrase built by an extension process to repeat word linking according to a word-based linkage probability." Pfister et al. are silent on extension processing that determines whether

to link words based on a word-based linkage probability. Thus, Pfister et al. do not include all of the features of claim 1.

Abe et al. disclose, in Figs. 7 and 8, an interpolation process for interpolating characters and/or words in a sentence containing omitted characters and/or words (represented as "~"). Abe et al. disclose that the omitted character is interpolated by words based on an occurrence probability, a transition probability of the words, and a usage frequency from the characters before and after the omitted character (col. 7, lines 21-59). Abe et al. do not disclose or suggest Applicants' claimed features of "the candidates prepared in...step (b) are obtained by repetition of an extension processing step for...an extension of words...determining whether to link the words based on a word-based linkage probability obtained by a language model" (emphasis added). These features are neither disclosed nor suggested by Abe et al. The subject invention, as recited in claim 1, includes a step of extension of words by determining whether to link the words using a language model. In contrast, Abe et al. supplement an omitted character by words based on the characters before and after the omitted character. Thus, Abe et al. do not include all of the features of claim 1.

Applicants' claimed features provide advantages over the cited art by presenting candidates to the user with a long word string with higher word-based linkage probabilities for frequently used expressions, and with a short word string with lower word-based linkage probabilities for rarely used expressions. In an embodiment of the subject invention, candidates of word strings are obtained in the candidate preparing step by repetition of extension processing for performing an extension of words. The extension processing determines whether to link the words based on a word-based linkage probability obtained by a language model. Thus longer word-

string candidates can be prepared when it is determined to link the words. According to this method, as described on p.12, line 17 - p.13, line 3, a short phrase can be made up of properly connected morphemes, providing more preferred interaction with a user. In the subject invention, this process is referred to as an extension process of morphemes.

According to an embodiment of the subject invention, when the user selects candidates that are presented as text, a long word string, such as a clause, is easy for the user to understand and easy to choose. However, presentation of candidates that are made up of a long word string such as a clause may contain a recognition error when a rarely used expression is inputted by speech, thus requiring correction by the user. Therefore, a long word string is not always desirable for presenting candidates to the user. In an embodiment of the subject invention, candidates are presented to the user with a long word string with higher word-based linkage probabilities for frequently used expressions, and with a short word string with lower word-based linkage probabilities for rarely used expressions. Because candidates of word strings are obtained by repetition of an extension processing step that determines whether to link words based on word-based linkage probabilities, the word string that is presented to the user can be varied depending on the frequency of use of the words (for example, a rarely used word or a generally used word) contained in the input speech. Accordingly, the subject invention provides a desirable interaction with a user by the presentation of the word candidates, for example, ease of use by the user in the input of text. Thus, Applicants' claim 1 includes advantages and features neither disclosed nor suggested by the cited art. Accordingly, allowance of claim 1 is respectfully requested.

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Although not identical to claim 1, amended claims 5, 13 and 17 include features similar to claim 1 which are not disclosed or suggested in the cited art and are allowable for at least the same reasons as claim 1. Namely, repetition of extension processing for extending words and which determines whether to link the words based on a word-based linkage probability. Accordingly, allowance of claims 5, 13 and 17 is respectfully requested.

Claim 9 includes all of the features of claim 5 from which it depends. Accordingly, claim 9 is also patentable over the cited art.

Claim 9 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Pfister et al. in view of an Official Notice that cellular telephones having speech recognition capability are well known in the art. Claim 9, however, includes all of the features of claim 5 from which it depends. Accordingly, claim 9 is also patentable over the cited art.

Claims 3, 6-7 and 22 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Pfister et al. in view of Abe et al. Claims 6-7 and 22 have been cancelled. Claim 3, however, includes all of the features of claim 1 from which it depends. Abe et al are discussed above and do not make up for the features that are lacking in Pfister et al. Accordingly, claim 3 is also patentable over the cited art.

Claims 10-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Pfister et al. in view of Abe et al. and further in view of an Official Notice. Claims 10 and 11, have been cancelled. Accordingly, the rejection of claims 10 and 11 is moot in view of the cancellation of these claims.

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Claims 4, 8 and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Pfister et al. in view of Abe et al. and further in view of Huang et al. (U.S. Pat. No. 5,829,000). Claims 8 and 12 have been cancelled. Claim 4, however, includes all of the features of claim 1 from which it depends. Huang et al. do not make up for the features that are lacking in Pfister et al. and Abe et al. Accordingly, claim 4 is also patentable over the cited art.

Claim 12 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Pfister et al. in view of Abe et al., further in view of Huang et al. and further in view of an Official Notice. Claim 12 has been cancelled. Accordingly, the rejection of claim 12 is moot in view of the cancellation of this claim.

Claims 23-31 have been added. No new matter is introduced herein. Support for claim 23 can be found, for example, at p.24, lines 8-11 and Figs. 4 and 9. Support for claims 24-31 can be found, for example, at p. 13, line 21 - p. 14, line 12. Claims 23-31 includes all of the features of respective claims 1, 5, 13 and 17 from which they depend. Accordingly, claims 23-31 are allowable over the cited art for at least the same reasons as for respective claims 1, 5, 13 and 17.

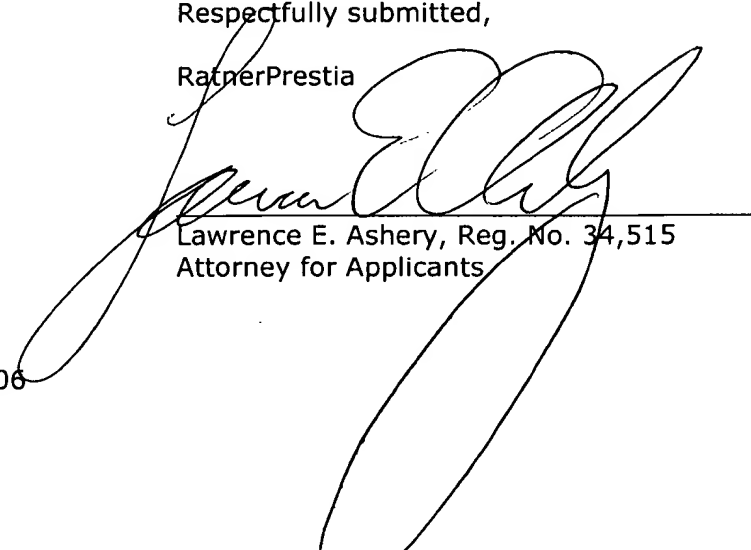
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In view of the amendments and arguments set forth above, the above identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,

RatnerPrestia



Lawrence E. Ashery, Reg. No. 34,515
Attorney for Applicants

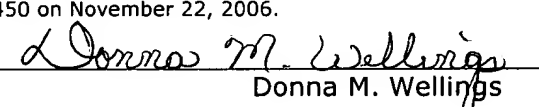
LEA/DG/ds/dmw

Dated: November 22, 2006

P.O. Box 980
Valley Forge, PA 19482
(610) 407-0700

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Donna M. Wellings

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